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FORTY-NINTH MEETING OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

Held at Washington, D. C., May 6th and 7th, 1913.
Reported by Mrs. M. C. Repp.

The President, Dr. Myles Standish, in the Chair.

Degeneration of the Corneæ of a Man and His Adult Son.—Dr. Burton Chance, Philadelphia.

These cases are examples of nodular degeneration of the cornea as found in two or more generations or in several members of a family. The men were aged 54 and 26 respectively, and each had been practically blind since infancy. No other members of their family for five generations were known to have had serious or unusual affections of their sight.

Each of all four corneæ was occupied by a large but faint disk which covered the central two-thirds of the corneal area, while the outer third, including the limbus, was perfectly transparent and unaffected. The disks consisted of fine, dotted groups of a yellowish-gray flocculent material or coagula, arranged in more or less radiating lines situated beneath Bowman's membrane and in the anterior layers of the stroma, as though resting between the membrane and the stroma. Here and there were glistening points like crystals. At the apex of the summit there were two larger, bubble-like bodies which projected beyond the general surface of the cornea. The epithelium was intact and glistened. The diskoid areas terminated somewhat unevenly in an indefinite radiating network. The center of each disk was condensed, outside of that was a more or less transparent zone while beyond was another denser por-

tion which ended in more or less diamond-shaped reticulations. The corneal membrane beyond the areas was quite clear and healthy, showing neither infiltrate nor vessels. The crypts of the iris were deep, the reactions prompt. No view of the funduses could be obtained, but the vitreous bodies were presumably clear and the retinæ believed to be healthy.

The son's corneæ presented the same characteristics as the father's except that the opacities were not so dense, and were more reticulate. The surfaces were even, smooth and polished and distinctly sensitive.

The opacities were circumscribed and bilateral of approximately equal size in each eye, and each person's like the other's, except that the son's were less dense, or rather the lines were not so numerous. At first glance they looked like the residue of an interstitial keratitis. At the center of the patches the masses were so close together as to be without arrangement and it was only at the periphery that the retriculation was apparent. There were no signs of inflammation, no pannus nor obliterated vessels. The irides were healthy. There was no criss-cross latticing of fine threads, as in Haab's and Freund's cases; nor pigment dots, as in Doyne and Stephenson's, and the surfaces were smooth as in Fehr's.

Each man was subjected to the Wassermann and to tuberculin tests, with negative results. A thorough study of their chemic metabolism showed the same comparative percentages as found in healthy individuals; and so also did the blood-contents with the differential countings.

DISCUSSION.

Dr. William Zentmayer, Philadelphia: A point I think should be made is the differential diagnosis between different kinds of interstitial keratitis. In naked eye appearance they resemble one another very closely, but with the corneal telescope the changes are quite different. The absence of vascularity which prevents blood channels in the cornea and the total and prolonged involvement of the iris are points against interstitial keratitis. I think in the man's case particularly the condition looked like the sequelæ of an interstitial keratitis, perhaps because the process was so much older than in the young man. I think with care they could be diagnosed from interstitial keratitis. As far as the ætiology is concerned it is to be looked upon as a hyaline degeneration, not of tuberculous origin. The process resembles somewhat that of nodular keratitis.

Dr. John E. Weeks, New York: A few months ago I presented cases similar to these at the meeting of the Section on Ophthalmology of the New York Academy of Medicine. In the father the degeneration was quite well advanced. That is, the vision was reduced as far as I can recollect to about 17/200, while in the son, who is a man of 21, the vision was 20/70. In this family there were 3 sons and 1 daughter, and 1 other son had defective vision. This condition is the so-called family degeneration and it is in all probability a condition due to what has been handed down through generations. These cases begin early in life and tend to increase somewhat as the individual grows in years.

Dr. G. E. De Schweinitz, Philadelphia: I would like to say a word as to a matter of therapeutic interest, because Dr. Chance was kind enough to permit me to examine his interesting patients. In a case of similar character—familial degeneration of the cornea—in a man familiar to my colleagues in Philadelphia, I tried for a long period injections of tuberculin. It was once believed by Wehrli to be a form of chronic tubercular disease of the anterior layers of the cornea. There were absolutely negative results from the tuberculin. I also tried in this same patient, who was willing to submit to a great many things, a line of subconjunctival injections, in the hope of influencing some of the deposits, but with negative results. I finally tried both instrumentally and by the fingers a long series of massage experiments, with dionin, etc., and plain massage. The patient was mesmerized into believing that he was somewhat better. He was not. I cannot truthfully say that there was one particle of improvement in the visual power.

Dr. Samuel Theobald, Baltimore: I have under observation now and have had for 12 or 18 months a case similar to the one described. The vision of one eye is more affected than the other. I have tried every conceivable form of treatment, constitutional remedies and local remedies, eserin and constitutionally arsenic and everything that could be thought of. The condition improves at times. Once or twice I thought it might disappear and then it grew worse. The other day the patient came to my office and this was one of the periods when things looked less promising. The cornea is decidely uneven and opaque. I was in hope that I might hear something that would be of value here. In my case the tension is not what you would call plus, but it has been suggested that benefit might result from iridec-

tomy not only for visual purposes but to improve the condition of the eye by some lessening of tension. I hoped that some suggestions of that kind might be made to throw light on my case.

An Extreme Case of Conical Cornea with Cataract.—Dr. David Harrower, Worcester, Mass.

This patient was a man aged 66 who had been affected by conical cornea for about 25 years. It was one of the most extreme cases I have ever seen and was complicated by mature cataract. The sight was so bad that he had to be led by an attendant. Operation for cataract by extraction of the lens was performed. A good operative recovery was secured and the patient is now able to go about the street alone.

Keratoconus, with Reports of Cases.—Dr. John E. Weeks, New York, N. Y.

There are four principal objective methods of diagnosing keratoconus which is in the beginning rather difficult to recognize:

(a) Observation with the ophthalmoscope which will disclose a myopia at or near the center of the cornea and a distortion of the retinal image. Observed with plane mirror the apex of the cone, when the patient looks at the source of reflected light, gives a bright reflex surrounded by changing concentric shadows on slight movement.

(b) The retinoscope, which gives the effect of irregular astigmatism, the reflex from the cornea being small at the apex of the cone and elongated into an irregular wedge-shape at the sides of the cone.

(c) The keratoscopic examination my means of Placido's disc, the image of the disc being elongated and broadened toward the periphery of the cornea.

(d) The ophthalmometer. This is probably the most sensitive test.

Various methods of both palliative and operative treatment are advised by different authorities upon this subject. In the study of keratoconus it occurred to the writer that in order to bring about a suitable permanent reduction of the cone by operative procedure it was necessary to reduce the tension of the eye as much as possible and to maintain this hypotension for a long period of time until healing was complete. To this end it was thought best to perform iridectomy, placing the coloboma

where it would ultimately be of greatest aid to vision because of its well-known tendency to reduce intraocular tension, and at the end of one or two weeks to apply the chosen procedure to the apex of the cornea, following this by the use of pilocarpine and a compress bandage. In the five operated cases reported this procedure was followed. About 10 days after the iridectomy the apex of the cone was cauterized in an oval area with its long axis horizontal with a platinum point heated to a red heat in the flame of a spirit lamp. The bandage was applied continuously for three weeks and at night for two months. Analysis of the fifteen cases which I report shows that even when the vision had fallen to 8/200, or less, it may be very much improved by the procedure described.

DISCUSSION OF PAPERS BY DR. HARROWER AND DR. WEEKS.

Dr. Robert Sattler, Cincinnati: I share with Dr. Weeks, as probably do many, the opinion that the keratoconus is inexorable, that the causes also could not be determined. I have also proved to myself that to prevent keratoconus is impossible. Also, that we can do little towards checking the advance of the symptoms. As far as the operative treatment is concerned we have had some favorable results, but a larger number are not favorable.

Dr. Edward Jackson, Denver: I have within the last week had a case of extreme conical cornea following a perforation of the cornea. The patient was a girl not more than 5 years old. In one eye there was a small perforation near the outer margin of the cornea, and the cornea subsequently became quite conical. In that case the lens had been removed by discission and it leaves a myopia of 17 diopters. The vision is improved somewhat by the concave lens, but it is scarcely adequate for reading large type.

Dr. C. H. Beard, Chicago: About 15 years ago I reported a case which gave me some new ideas in regard to the treatment of keratoconus that I have since put into practice with considerable success. This case, a woman, 35 years old, came to me on account of high myopia, 22 diopters in one eye, 24 in the other. With the best correction she got vision of only about 20/100. With a view of relieving her condition I advised removal of the crystalline lenses by discission. I performed several discissions on either eye, meantime keeping the eyes snugly bandaged so that the process took a long time. Much to my surprise when

the case was discharged the cones, which were extreme, had almost disappeared. Since that I have used very conservative measures in the management of these cases of keratoconus. With regard to the dystrophic nature of keratoconus, almost all my cases have been in young women of perfectly robust health.

Dr. William H. Wilmer, Washington, D. C.: It has always seemed to me that the use of pilocarpin in keratoconus is illogical, but pilocarpin is used everywhere extensively and I see no logical reason for its use except to give the patient temporary vision. It increases the keratoconus by the effect of pulling in the base of the cone. If it is a mild case a great deal can be done by three things which are perfectly logical and which do help the condition. The first is making the patient give up eye work. There are many fields open, the orchardist, expert dairyman, the farmer. Make the patient give up his books and go to the farm. Second, correct the refractive change by glasses having the cylinders plus or double plus. Building up the general condition does help to stay cases in the beginning. My experience has not been that keratoconus occurs in robust people. The last six cases I have seen were in anæmic individuals.

Dr. T. Y. Sutphen, Newark, N. J.: My experience shows that improvement in the general condition seems to stay the disease, while in strumous cases, and in cases in which a catarrhal condition exists and where there is a long continued conjunctival inflammation, the keratoconus has a tendency to grow worse.

Dr. William Campbell Posey, Philadelphia: In operating on conical cornea I aim at producing a large, dense and triangular scar in the base of the cone, making the cauterization densest at the periphery of the cornea and lightest at the apex of the cone. I think it is necessary that one should have a large and dense scar. If the pupillary area of the cornea is not covered by the scar it may happen that it will not be necessary to cut out a piece of the iris. Tatooing of the cornea is often of value not only on account of its cosmetic effect, but to cut out aberrant rays of light.

Dr. Allen Greenwood, Boston: I advocate a little earlier operation than seems to be generally done. A patient with vision of a little less than 22/100 is almost invariably bettered by a proper cauterization. I have operated on 4 cases and I am very positive that all four of these patients would testify to the great benefit of the operation. One young boy whom I operated on

this spring with a vision of 24/100 with a glass, much less without a glass, now has a vision of 20/70 with a very dense white scar, which he can see around and can read newspaper type. He certainly is very grateful. I think it is better to do the cauterization without waiting too long.

Dr. William Zentmayer, Philadelphia: If one will look back over the literature of 20 years ago, he will find an admirable paper by Dr. James Wallace on "Refraction of Ulcers of the Cornea." Some of the results were brilliant and accomplished by exceedingly high cylinders which were determined after a prolonged course of miotics. I have pursued his method since Wallace brought it forward and I can speak highly of it. Of course it does not take the place of operative interference where there has been breaking down and scarring at the apex.

Dr. John E. Weeks, New York: I am very glad the subject has awakened so much interest. Two of my patients were rather anæmic and in poor health. The others were apparently quite robust. As to the influence of the use of the eyes on the advance of the keratoconus, it is important that the patients should be restricted in the use of the eyes for close work. Outdoor life will help very much. In regard to changes in the eyes, other than these which take place in the cornea, in those I have studied the eyes have remained normal so far as other tissues are concerned. In regard to operative procedure, if the cauterization is done so as to leave the apex clear, in many cases the visual result will not be very good because the corneal tissue at the apex is frequently hazy. The haziness tends to increase below and an iridectomy, if it is to be of visual value, should be made in the majority of cases, above on the temporal side. The cauterization done by Posey is good, provided the cauterization of the cone is extensive enough. The principle involved in making the iridectomy is one of reduction of tension and that is also the principle that I endeavor to carry out in the use of miotics.

Interstitial Keratitis of Luetic Origin.—Dr. George S. Derby, Boston, and Dr. Clifford B. Walker, Boston (by invitation).

Interstitial keratitis probably occurs in 1 out of every 200 cases of eye disease. The mode of production is still shrouded in mystery. It is considered by some to be due to irritation by spirochætæ in the cornea, while others consider it due to the toxins of the disease. This is one of the most discouraging dis-

eases to treat. The lesions are extremely unyielding to antisyphilitic treatment, including salvarsan. During the past winter the authors have treated 6 cases of interstitial keratitis with serum from patients who had been injected with salvarsan, but in none could the results be considered encouraging. Energetic antisyphilitic treatment should be carried out in these cases.

DISCUSSION.

Dr. Emil Gruening, New York: Dr. Derby remarks that keratitis parenchymatosa is one of the most unpleasant diseases to treat and that the results are not satisfactory. In my experience, which dates back prior to salvarsan and before we did all the social service that we do now in investigating the whole family, I have never seen a case of keratitis parenchymatosa lost. Every case recovers in my experience if properly treated generally and locally. If there are toxines in the cornea these toxines make themselves felt in the iris and we often have iritis. This should be treated by instillation of atropia, strong solutions, under the observation of a physician, should be used so that the pupil remains dilated. It will not do to send the patient home with a few drops and say, "Put this in the eye and come back in a week or ten days." Keep the case in the hospital. All the hospital cases get well. I would say that keratitis parenchymatosa is one of the most hopeful diseases we have.

Dr. H. D. Bruns, New Orleans, La.: It seems to me that we ought to take part in these debates when they touch on subjects in which we have an especially large experience. As the negroes with us are pretty nearly all syphilitic and their offspring have interstitial keratitis in a wholesale way, I see it incessantly and everlastingly, I agree fully with what Dr. Gruening has said. It is one of the most benign of diseases. I never saw a case that did not get well. I have seen them get well in a few weeks, while others will drag along for months or even two years. It is only by taking a vast number of cases, getting some idea of average duration, then comparing large series of cases treated in various ways that we can arrive at certain conclusions as to whether our treatment is doing good or not. I believe we should employ, and with advantage, a vigorous anti-syphilitic treatment, the best being inunctions if possible with Turkish baths repeated and inunctions in large quantity, using the mercury to the point of toleration. Locally I know of nothing but to keep the pupil dilated.

Dr. W. B. Marple, New York: We all know that interstitial keratitis gets well, but it is a question as to whether it gets well any quicker by the use of salvarsan or the old methods of treatment. Up to about a year ago I had the impression that salvarsan was not of any special therapeutic advantage. This year in the cases of interstitial keratitis which came under my observation I gave salvarsan, and in two weeks a second and possibly in two weeks more a third injection. While I have not become very enthusiastic about it, I am sure the results are very much better when the dose is repeated.

Dr. Frank J. Parker, New York: I had an opportunity to use salvarsan in a limited number of cases of interstitial keratitis and in all of the cases the drug was given intravenously and routinely repeated at the end of a week. Whether subsequent doses were given or not depended upon the Wassermann test. In 1 case 5 doses were given. In the cases where the Wassermann was not negative after the second dose there was no immediate relief of the inflammatory symptoms. In the cases where the inflammatory symptoms cleared up immediately, almost in every case, the Wassermann was negative.

Dr. R. L. Randolph, Baltimore: I have in mind 4 cases of interstitial keratitis. In all 4 cases the Wassermann reaction was positive. There seemed to be then no doubt as to the presence of lues. In 2 of the cases there was a typical picture of the hereditary form of the disease; in the other two cases, of the acquired form of lues. In the cases of hereditary lues the salvarsan had not the slightest effect so far as I could see. I take the same view as Dr. Gruening as to prognosis. I have never been inclined to regard the prognosis serious as regards sight. I can recall none that did not recover sight.

Dr. George E. De Schweinitz, Philadelphia: As for salvarsan, I have experimented by taking into my wards cases of interstitial keratitis which occurred in young men and in children. All the patients had previously been treated by the ordinary methods. I have never in my therapeutic experience seen the clearing which took place in the corneæ of those patients equaled by any other procedure. The salvarsan was given in repeated doses at intervals of 2 or 3 weeks in full doses. In the intervals between the injections of salvarsan the treatment by mercury and iodide of potassium with the salvarsan, as advocated by Dr. Gruening, was carried out.

Dr. Charles W. Kollock, Charleston, S. C.: My experience is that of Dr. Bruns as to syphilis in the negro and the preva-

lence of interstitial keratitis. Also, most cases of this disease recover. Quite a number recover without any treatment. There is no doubt about that. I mean without any medicinal treatment, if they have the right hygienic surroundings and the right food. I have treated them principally by inunction and not very much by iodide of potassium.

Dr. John E. Weeks, New York: We know, those of us, at least, who have had experience, that interstitial keratitis is affected very little by salvarsan. It is affected somewhat, however, and it is affected more markedly in the cases that are most acute. Apparently these cases that are most acute have a greater content of spirochætæ. In cases of acquired syphilis the effect of salvarsan is quite remarkable. It has appeared to me that the content in spirochætæ in acquired syphilis is greater than in inherited. The use of neosalvarsan is falling into disrepute in my experience.

Dr. S. Lewis Ziegler, Philadelphia: There is no doubt that these cases of interstitial keratitis improve more rapidly under the use of salvarsan than by the use of other methods. But, on the other hand, it is not necessary to stop the other methods. In the cases that I have observed the salvarsan produced a rapid improvement and a rapid reduction of the Wassermann reaction. The intravenous injections produced better results than the intramuscular.

Ophthalmia Artefacta (*?*).—Dr. H. D. Bruns, New Orleans, La.

History of a white girl, aged 17 years; no particular evidences of ill health, but of scrofulous type. First came to clinic for catarrhal blepharoconjunctivitis May 13, 1908. Superficial ulcer appeared on skin of both lids of left eye on June 6. Healing was slow, and on August 24 a shallow, angry ulcer of the right lower cul-de-sac invaded the bulbar conjunctiva. On September 9 a black spot in its depths was supposed to be the exposed choroid. On September 18 the ulcerated area became suddenly much greater, extending from the corneal limbus down into the lower cul-de-sac and up the palpebral conjunctiva to the free edge of the lid, with an average width of quite one-quarter of an inch. The ulcerated surface looked as though stained with ink, the central and deepest portion of a still more intense black. The discoloration was clearly perceived to be due to tissue necrosis. These attacks continued with varying frequency. In July 20, 1910, similar lesions appeared on the skin of the body. The patient was now admitted to the ward of Dr. H. E. Menage, one of

our consulting dermatologists, who considered the skin lesions self-inflicted (*New Orleans Med. and Surg. Jour.*, Vol. LXIII, No. 6). Nothing noteworthy could be found by the neurologist, the laryngologist or the internist. Examination of smears, cultures and bits of tissue were negative. The injection of diphtheria antitoxin, and the ocular tuberculin test, applied by Calmette's own hand, were without result. All forms of treatment were unavailing. Nubeculæ, leukomata, and symblephara followed, and vision was greatly impaired. Twice, successful operations for symblepharon were performed, but the repairs were swept away by gangrenous ulcerations. Although it seems incredible that a person would slowly destroy both eyes, reducing herself almost to blindness, while month by month the gradually growing calamity of her own act might be perceived and appreciated; that she should submit herself to four trying, if not painful operations and the tedium of recovery, and then maliciously lay waste her own comfort; yet, in spite of this incredibility, I see nowhere to turn from the conclusion of my colleague, Dr. Menage—that, as the skin lesions were self-inflicted, dermatitis factia, so by analogy the eye condition must be called ophthalmia artefacta; and this is my excuse for presenting the case, and so putting it on record.

DISCUSSION.

Dr. F. H. Verhoeff, Boston: Several years ago I saw a case that was so similar to Dr. Bruns' that I am wondering whether it was not a sister or the same case that finally got into his hands. This was a young lady, also scrofulous. When I first saw her she had a very slight inflammatory condition of the conjunctiva of which I made light. I think that is the secret of her trouble. Two or three days later I found her in the hospital and she was suspected of having secondary syphilitic lesions all over the skin. In addition to that she had a condition of the eye that I have never seen before, a gangrenous appearance extending over the corneal limbus, to the equator on one side. The case was suggestive of hysteria. The skin lesions looked like keloid scars. The patient said they had a habit of bleeding spontaneously in a miraculous manner. I had her put in a room and a nurse to watch her closely and one day the nurse found her finger-nails stained with blood and it was then easy to trace the eye condition. She had taken her finger and had dug into the bulbar conjunctiva, into the sclera and laid bare the sclera back to the equator. Then the neurologists were called

in and they confirmed hysteria. I advised spanking as treatment. The neurologists did not agree. I do not know what the final outcome of the case was.

Dr. H. D. Bruns, New Orleans: I do not think this girl could have been any relation to Dr. Verhoeff's girl; she never had been out of the state; she did not belong to the class that could travel. She had not the means to get out of New Orleans. I treated her almost for 2 years and the last condition of this patient was worse than the first.

The Prophylaxis of Ocular Birth Infections.—Dr. Robert Sattler, Cincinnati.

Bacteriology now directs a more certain diagnosis and, in accordance therewith, assigns ocular birth infections to non-specific and to specific or gonococcal organisms. The term ophthalmia neonatorum should be discarded. Non-specific organisms comprise a larger contingent, and specific or gonococcal, a smaller but more variable one, or 50 per cent. or less, of the total of all birth infections. This entire subject had been invested with a silly and false sentimentalism on the part of many social science workers and members of the medical profession. We have a fairly reliable prophylaxis for non-specific organisms, but a next to impossible one for specific or gonococci. Non-specific infections will and can never be completely wiped out, as the causes which produce them will repeat themselves, but their gravity and number can and will be more certainly reduced in the future. Specific or gonorrhœal infections will continue undisturbed their destructive work and defy the best prophylactic measures at present at our command, and claim their quota of infantile eyes. Infantile ophthalmo-gonorrhœa is as heretofore the same public menace and a preventable outrage upon helpless infancy. Now, as formerly, it reaches and maintains a numerical level which fluctuates but little.

DISCUSSION.

Dr. Lucien Howe, Buffalo, N. Y.: It behooves us as members of the American Ophthalmological Society to make ourselves prominent in advocating prophylactic measures in our different states. To the effect that children born in public institutions shall have some form of prophylactic treatment used. These children are the wards of the state and the state has a perfect right to say what shall be done.

Dr. George F. Fiske, Chicago: I would say a word in regard to the use of nitrate of silver, which has been advocated for a number of years. I have seen myself 4 cases where the instillation of 2 per cent. nitrate of silver has caused ulcers on the cornea in 24 hours. It might cause trouble and it should be watched carefully.

An Unusual Case of Staphylococcus Conjunctivitis.—Dr. William H. Wilder, Chicago.

By invitation, Dr. David J. Davis, of Chicago, gave the bacteriological findings in the case.

A frail colored woman, aged 30, had suffered for 5 years with conjunctivitis which showed alternate exacerbation and improvement but was resistant to various forms of treatment. A peculiar feature of the case was the presence of a greenish exudate which formed rapidly upon a granulomatous mass in the inferior fornices. The patient was tuberculous, one kidney having been removed for this condition, but there was no evidence of tuberculosis in the conjunctiva. The eye condition was found to be due to staphylococcus infection, pure cultures of this germ having been found. An autogenous vaccine was prepared in September, 1911, and a course of vaccination with this carried out. In two months the eyes were healed.

DISCUSSION.

Dr. F. H. Verhoeff, Boston: I had an opportunity to glance at those specimens and I believe that the staphylococcus had very little to do with the condition. It seems a secondary invasion. I think these other bodies are very important and it seems to me they are evidently the cause of the lesion. They are fairly numerous and many of them are star-like in appearance. I am strongly inclined to believe they are the cause of the condition. I would hold to the view that it was a vegetable parasite of an unusual kind.

Dr. Lucien Howe, Buffalo, N. Y.: In the copy of the Transactions which appeared 10 years ago there appears a description of a case very similar to this. A child came to the infirmary with a very similar history, the exudate was so marked that it was possible to remove it one day and the next day it would return. That child went to the blind asylum. A brother of that child became infected and had exactly the same thing develop.

Dr. Wilder, Chicago: Dr. Davis made the examinations with

careful experiments for sporotrichosis, blastomycosis and various tests for aspergillus and nothing definite was obtained. An explanation of the case is, I think, a curious condition in which the individual is excreting a pigment substance, probably the tissues themselves have some chromogenic power. Possibly it may be allied to those cases in which there is a chromogenesis of the skin.

A Case of Congenital Apron of the Palpebral Conjunctiva.—Dr. Henry H. Tyson, New York.

A woman, aged 40 years. Upon eversion of upper lid of left eye the tarsal portion of the conjunctiva presented an appearance as if a fold of conjunctiva had been pinched up with forceps, and had been pressed back against the tarsus, and had adhered to it. The fold extended the entire lenth of the lid. The majority of such cases reported were from eastern Europe.

Report of a Case of Bilateral Congenital Ptosis Relieved by the Motais Operation.—Dr. B. R. Kennon, Norfolk, Va.

The excellent result secured warrants the report of this case. In a previous case the de Grandmont operation failed to correct the deformity, although the ptosis in two other cases was relieved by the Panas operation. The objection to the latter procedure is that it causes more or less disfigurement, and may leave a permanent annoying fistula. The patient, aged 6, had a congenital ptosis of both eyes of such marked degree that the lids were separated only 3 mm. at their centers, and only the lower border of the pupils showed in the palpebral fissures unless the head was thrown back about 20 degrees. The technic followed was that given by Dr. H. D. Bruns in his paper on this operation, except that the middle two-fourths instead of one-third of the superior rectus was transplanted, as the muscles seemed quite small, and, instead of cutting the stitch, it was twisted each day until it came away. Two photographs were taken, 3 years apart, the first previous to the operation, and the other about a year ago, which shows that the result is permanent. It has not changed in the least since the reaction following the operation subsided. The movements of the eyes upward are somewhat, but very slightly, impaired.

DISCUSSION.

Dr. E. E. Holt, Portland, Me.: I had a case several years ago in which three operations had been performed on the left eye. I operated very much as the author described and obtained a very good result so that the patient is satisfied.

Dr. Edward Jackson, Denver: I have done Motais' operation in 3 cases and I think that on the whole it is the most satisfactory operation for cases in which it is suited, cases of complete paralysis of the elevator of the upper lid when the eye otherwise in good condition. Like Dr. Kennon I have used about half of the middle tendon to attach to the upper lid. The last operation that I did was on a monocular case and the result I think was thoroughly satisfactory. There was a little diplopia the first few days after the operation which quickly passed away but since then there has been no complaint and it has been 2 or 3 years since that was done. For a time after the operation the effort to close the eye tightly attended with a rolling up of the eyeball caused a peculiar pulling up of the upper lid. In a case I had 5 or 6 years ago, after a few months this had passed away entirely and the control of the lids is just as perfect in this young man as in any of our lids. He closes his eyes without retraction of the lids.

Dr. H. D. Bruns, New Orleans: It is a great pleasure to me to find that somebody is beginning to do Motais operations. There was quite a period when I could see in the eyes of my audience that they listened to what I said of its advantages with a considerable grain of salt. I have done the operation 12 or 13 times. Of course I failed in my first. After some experience I had success unequaled by any other method of managing this unfortunate condition.

Discission of the Crystalline Lens.—Dr. Edward Jackson, Denver, Colorado.

The procedures for cutting or breaking up the crystalline lens are rather loosely described in our standard works on ophthalmology and they are often executed without attention to details which will determine their safety, and the success that will be attained. Discission of the lens aims to cause disintegration of the lens substance, so that it may ultimately be removed by absorption. The change in the lens substance begins with clouding and swelling. It gradually becomes more opaque, friable and liquid; and this is followed by absorption. The eye is prepared by full dilatation with atropin and local anæsthesia by two instillations of a 4 per cent. solution of cocain. Perfect steadiness of the patient is desirable and to this end some recommend general anæsthesia, but I have not encountered any serious difficulty from movements of the eyeball during the operation which has generally been done under local anæsthesia. As to the intro-

duction of the needle I have of late years introduced it through the outer or outer lower portion of the limbus, starting one-half to 1 millimeter back from the clear cornea. The needle should be passed parallel to the plane of the iris until the edge of the pupil is reached, then with the back of the needle toward the iris the point is depressed until it touches the capsule and then is pushed directly forward as near as may be to the center of the lens nucleus. It is then directly withdrawn. This first needling generally starts the process by which the lens is to be removed and it tests the probable reaction of the eye to such interference. The passing of the needle in as far as the center of the nucleus is not of great importance in young children but it is important in older patients where a firmer nucleus is present and makes the removal of the lens by absorption slow and difficult. At the second operation the aim is chiefly to disintegrate the nucleus. The point of entrance is practically the same, but after the needle is carried into or through the nucleus it is turned and made to cut up and down so that the nucleus may be broken into several fragments. Safety and complete success were attained by allowing sufficient time. In young children three operations will usually be sufficient but in these as well as in older patients twice that many may sometimes be required. In young children it should be understood that it may take six months for the desired result while in older persons it is better to allow a year. The method is not one to be advised for patients living at a distance, nor for those who must be rid of a cataract at a certain definite time, though it is the best method and the one causing the least inconvenience or disturbance of ordinary occupation. After needling, the other eye should not be used for exacting work during the period of reaction, but it need not be closed and even the eye operated on is better freed from all dressings within 24 hours. I have had 2 patients successfully treated by needling after 40 years of age and up to that age it is to be considered a standard therapeutic resource. Under 30, if not excluded by lack of the time required, it is the method to be first considered.

DISCUSSION.

Dr. S. Lewis Ziegler, Philadelphia: I can endorse Dr. Jackson's method of making these operations on soft cataract. I must say, however, that I do not always confine myself to making the puncture through the periphery, sometimes using the cornea if I find it is wise to do so. In other words I do not

think that it is so dangerous that it should always be avoided. I use my knife-needle, probably because I am more accustomed to it and make the ordinary V-shaped incision, not so large as it would be in making capsulotomy. I generally make 3 operations at an interval of 3 weeks apart. In a fixation in children if we do not wish to etherize I think there is nothing so good as a small horseshoe-shaped forceps. You can fix with this perfectly and the patient can't get away if the nurse holds the head. I do not think it is possible to do any harm to the eye with that forceps. I prefer that to etherizing under all circumstances if it is possible.

Two Cases of Chronic Glaucoma Treated by Iridotasis.—Dr. David Harrower, Worcester, Mass.

I have recently performed the operation described by Borthen (*Archives of Ophthalmology,* Vol. XL, No. 4, p. 405) upon 2 cases of chronic glaucoma with strikingly good results.

DISCUSSION.

Dr. S. D. Risley, Philadelphia: I think that what we are after here is the truth in these matters and we all come here for help and I listen with great interest to any procedure which has proved useful in any man's hands. But calling upon my own experience in other directions I would hesitate very much to wilfully perform any operation which had for its object the inincarceration of the iris in the wound.

Dr. Samuel Theobald, Baltimore: This reminds me of a procedure introduced by Mr. Critchett, Sr., of London, which he called iridodesis. It was done where there was a central corneal opacity, the iridectomy being made for visual purposes. The iris was seized through a small opening in the anterior chamber in the periphery and a fine thread pulled through; there was a slough and adhesion to the corneal wound. It seemed to be all right. He abandoned it because every now and then a case of sympathetic ophthalmitis resulted. I do not think that the inclusion of the iris is a factor. If we get a filtering cicatrix, we keep the tension down.

Dr. Edward Jackson, Denver: I think that the point that Dr. Theobald has just made is perhaps the most important in reference to this opeartion. A subconjunctival prolapse of the iris is totally different from one where the iris is exposed outside of the conjunctiva and simply covered by exudate. If it is covered by a broad flap of conjunctiva so that the iris is quite removed

from the peripheral wound, the seriousness of it is in my experience totally different. While I have not attempted to do Borthen's operation, in several cases of chronic glaucoma, where already there was complete loss of vision and where it was doubtful whether an iridectomy would give a good result, I have proceeded to drag the iris into the angle of the wound and cut it off and then drag the iris into the other corner and cut it off, and be careful to leave the iris caught in each angle of the wound. I think in every one of these cases I obtained a filtering scar and a permanent reduction of tension.

Fourth Series of Injuries from Foreign Bodies Examined by the Roentgen Rays, with Results of Operation.—Dr. William M. Sweet, Philadelphia.

Dr. William M. Sweet reported a fourth series of cases of injury of the eyes by foreign bodies examined by the Roentgen rays, with the results of operation. Of the 280 cases, the foreign body was situated in the lens in 7, in the iris in 2, in the ciliary region in 19, near the equator in 51, at the posterior part of the eyeball in 73, and in the orbit in 33. In 95 cases there was no foreign body shown by the rays. Including the cases reported previously, the total number of injured eyes was 982, in 719 of which the injury was caused by iron and steel, in 60 by copper or other non-magnetic metal, in 73 by shot, and in 32 by glass. Of the 280 cases in the present series, 65 eyes required enucleation, in 12 no operation was attempted or it failed, but the eyes were not removed; and in 23 the foreign body was in the orbit. In 20 vision of 6/12 or better was secured, 16 between 6/12 and 6/60, 5 counting fingers, 32 light projections, 5 no light perception, but eyeballs of normal size, and 7 eyeball shrunken. In 61 cases from the previous reports which had been under observation for periods from 5 to 13 years, the vision was 6/6 in 4, 6/9 in 4, 6/12 in 1, 6/18 to 6/30 in 3, 6/60 or less in 7, counting fingers in 5, good light projection in 5, imperfect light projection in 11, no light perception but eyeball of normal size in 6, eyeballs shrunken in 10. Five cases in which the eyes were saved in the previous reports subsequently required enucleation.

A Contribution to the History of the Magnet as Applied to Ophthalmic Surgery.—Dr. H. G. Sherman, Cleveland.

A foreign body in the eye is a great menace not only to the injured eye but to the other one also. On June 22, 1894, there

was brought to me a girl who had had a piece of a steel pin broken from a rapidly revolving machine penetrate and lodge within the eye. The only available magnet was a small one devised by Gruening, but this gave no response. I then consulted Mr. Hammer, of the Brush Electric Light Plant and requested him to make a magnet of sufficient power. He directed his chief electrician, Mr. Adams, to construct a magnet. This consisted of a bar of Norway iron, 18 inches long and 3 inches in diameter, wrapped with hundreds of feet of fine copper wire, properly insulated. The magnet was energized by the current from the street, the voltage being sufficiently reduced by a transformer and a rheostat of 30 coils of iron wire. The patient's head was brought within 6 inches of the magnet and the current turned on. I had not thought of removing the body except by incision, the magnet being used for diagnosis only, but some hours later the patient complained of a pricking sensation under the lower lid and search revealed a black point sticking through the sclera. This was removed by a slight incision and in a week the patient was well. This magnet was stronger than that of Haab, which was at that time unknown to me. Although a report was made by me in the *New York Medical Record,* Vol. 48, p. 212, no mention is made of this magnet in the literature referring to this subject.

(The above two papers were jointly discussed.)

DISCUSSION.

Dr. Samuel D. Risley, Philadelphia: I rise simply, not to discuss the entire subject of removal of foreign bodies, but to call attention to a paper which I presented before the Society several years ago, insisting upon it that these foreign bodies should first be localized and then removed from the scleral juncture and in that paper I pointed out the many reasons for this. If a foreign body should be drawn into the anterior chamber by any devious route it might select, we would only increase the canal and increase the virulency of any infection it might have. Unless the foreign body is in the anterior chamber or lens itself I have never removed the foreign body from the eye with anything but puncture. Dozens of times I have been able to touch the foreign body itself with the point of my knife when I made the scleral puncture and have picked it out.

Dr. E. E. Holt, Portland, Me.: I think I was the first to present a series of cases of removal of foreign body from the eye

in the early 90s. I used the magnet modified by Hirschberg. The earlier we get at the piece of steel in the vitreous the better it is for the eye. If you get severe pain after removing a piece of metal from the interior of the eye and the eye begins to soften, I do not think there is any use in trying to save the eye.

Dr. Edward Jackson, Denver: Blindly setting a powerful magnet to draw out a foreign body of unknown size and position is not worthy of the present stage of development of ophthalmology.

Dr. John E. Weeks, New York: The tendency this morning is to advocate the removal of foreign bodies through the sclera. Prof. Haab, as you know, takes the opposite view. I really think that there is a great deal of merit on both sides, but I do not think we ought to make any firm rule in regard to the course, the tract, through which we should remove a foreign body. I think every case should be decided on its merits and in many cases we can do less injury by removing through the anterior chamber than through the sclera, choroid and retina. In not a few cases the removal of a foreign body by the route through the anterior chamber is attended by almost no traumatism. Simply the passage through the zonula, and the foreign body is brought into the pupillary area and removed through an incision in the cornea. The round pupil is maintained and the injury is at a minimum. I would suggest that no fast rule be entertained, but every case be treated on its merit.

Dr. W. E. Lambert, New York: I would emphasize what Dr. Weeks said, that we cannot lay down any hard and fast rule. There is one point I would mention as an important factor in selecting the method, that is, as to the size and form of the foreign body and somewhat dependent upon the length of time it has been in the eye. I agree with Dr. Weeks entirely that we meet many cases where the foreign body is small, that the extraction through the anterior portion of the eye is the best method and have had a number of cases where it has been satisfactory. On the other hand, to get a ragged piece undoubtedly one should go in through the sclera. I had quite recently a most satisfactory case of that character. That simply means, therefore, that the observation made by the x-ray is an important guide as to the method we should follow in these cases.

Dr. S. C. Maxson, Utica, N. Y.: When a foreign body has been drawn into the anterior chamber, if you attempt that route, and by accident you foul the iris, you must be exceedingly care-

ful after you have made your incision not to apply the magnet again. The chance is that if you do you will pull the iris out with the foreign body. I would have had this accident had it not been for a remark made to me by a member of this Society a number of years ago when the subject was discussed. He spoke of what to do next if you had the misfortune to draw the iris out. Soon after this I did the operation and it fouled the iris and I remembered what the man said. I made the incision with a keratome and slipped the foreign body out and made an iridectomy and had an almost perfect result. I would call attention to the danger of applying a big magnet. I have a little magnet and instead of carrying under my arm I suspend it by a pulley where I can elevate to my liking.

Dr. Peter A. Calan, New York: Every case must be handled individually according to the circumstances, point of entrance, size, location and length of time, everything must be taken into consideration Ever since Haab has shown the method of bringing the body around into the anterior chamber I have followed that method, except in a very few instances and I think I have been successful. When you get the object into the anterior chamber, stop the use of the big magnet and with the small magnet bring the body around on the iris directly under the point you want to make the corneal incision. Make the corneal incision and apply to that opening the small magnet and it jumps out without bringing the iris into the wound. I do not mean to say we should not go by the scleral route. Let each man decide for himself what he is best adapted for.

Dr. H. C. Sherman, Cleveland, O.: I hope that someone will be able to elucidate a few points which are very obscure to me. Before I modified this very large magnet I made a series of experiments placing foreign bodies in pigs' eyes and using the magnet at various distances. In every instance in which I have attempted the use of the powerful magnet I first saw the iris bulge or the lens torn into the anterior chamber, I saw the suspensory ligament damaged and it caused a cold chill to go up my back, and I stopped the use of the magnet in that form. I do not see why any man can draw it so beautifully and gradually and pass it along just as you would guide a little lamb by a string. Any magnetic line of force goes along the line of least resistence straight and like a dash. The impaction is something terrific.

The Experimental Production of Sclerokeratitis and Chronic Intraocular Tuberculosis (with lantern demonstration.)—Dr. F. H. Verhoeff, Boston.

When dead tubercle bacilli are injected into the vitreous humor or anterior chamber of a rabbit they produce after about three months, lesions in the corneo-sclera closely analgous to those of tuberculous sclero-keratitis in man. Smaller tubercles are produced on and within the iris and still smaller ones on and witnin the ciliary processes. The latter are of special significance as they indicate that the foci in human cases of tuberculous cyclitis are not necessarily due to direct metastases from the blood. Tubercles of the choroid are also produced, due to bacilli passing from the filtration angle along the supra-chorioidal space.

These observations confirm the theory previously advanced that tuberculous scleritis and keratitis are due to infection from the aqueous humor through the filtration angle. They also strongly suggest that the chronic types of tuberculous iritis and cyclitis, and possibly chorioiditis, are likewise due to metastases from the aqueous humor, the bacilli reaching the latter from the vessels of the ciliary body. The lack of immune substances in the aqueous humor no doubt increases the chances for such metastases to occur. In addition, these observations suggest certain procedures in regard to treatment.

On Some Forms of Retinal Tuberculosis.—Dr. Arnold Knapp, New York.

Apart from the periphlebitic processes in the retina of adolescents and the cases of deep retinal exudation, there are forms of retinal tuberculosis which seem to involve the superficial or internal layers of the retina. Of this latter variety I report two cases.

The first was in a boy of 19 years, who consulted me because the sight of the right eye had been blurred for several days. V. was 5/200. There was a central scotoma. The sight of the left eye was normal. In the right eye the optic disk was swollen and inflamed and surmounted by a small hæmorrhage. The macular region was occupied by a perfect star-like figure, the radiations of which were composed of glistening, silvery, interrupted lines. The diagnostic injection gave a positive reaction. Two days later many small round white areas were seen about

the disk and the large retinal focus. Tuberculin treatment with the bacillary emulsion was instituted and about six weeks later the main focus was nearly gone and a distinct connective tissue formation was taking place. The macular figure was reduced to a few radiating lines in irregular areas. Three months later nothing remained in the macular region except some shining dots and superficial pigment. The vision had improved to 15/200, but there was still a central scotoma. The rapid and continuous improvement under tuberculin treatment confirmed the diagnosis of a tubercular lesion.

The second case was a patient 22 years old, who was seen because of failing sight in the right eye of one week's duration. Vision in the right eye was 8/200 with a central scotoma; that of the left eye normal. There was in the right eye a white exudate composed of rounded areas along the course of a macular vein. A positive reaction to tuberculin was obtained. Tuberculin treatment was instituted. But in spite of this the lesions extended along the course of the bloodvessels for a time, but later absorption and transformation of connective tissue progressed slowly and four months later only two exudates were visible and these reduced one-half in size. The vision has increased to 18/200, the central scotoma persisting. Considering the extent and severity of the process in these cases the outcome must be regarded as very favorable, for which result the tuberculin treatment was probably in great part responsible.

(These two papers were discussed jointly.)

DISCUSSION.

Dr. Hasket Derby, Boston: Dr. Verhoeff's experiments suggested the possible benefit of puncture of the anterior chamber in cases of tuberculosis of the anterior segment of the eye. I have done this a number of times. On one case with beginning infiltration in the cornea following a very marked scleritis I have done the puncture 4 times and apparently the process has been entirely arrested. I have done it twice on another case and on one or two others and it certainly seems as if it were a procedure of value. There has never been any severe reaction from it and the next day the eye is no more inflamed than before the puncture was done and very often it has been less inflamed.

Two Unusual Orbital Conditions—Dr. William Campbell Posey, Philadelphia.

Case 1.—Chronic inflammatory tumor, with cyst and giant-

cell formation, in the floor of the orbit and connected with the lacrimal sac, arising after false passages of lacrimal probes. As the mass threatened the integrity of the globe from pressure, it was removed under ether. Macroscopically: Cyst without capsule or definite limitations from the surrounding tissues. Histologically: A fibrous stroma with occasional small collections of lymphocytes, numerous small cysts, and foreign-body giant-cells. The pathologists were of the opinion that the mass should be regarded as the reaction of the tissue in the injured area to some form of foreign-body irritation.

Case 2.—Large lacrimal mucocele, occasioned by pressure exerted externally by the distended walls of the anterior ethmoidal cells, in consequence of the retention of mucus within that cavity. Extirpation of the sac was followed a year later by another swelling. The orbital tissues were incised, and a large mucocele was found projecting from the inner orbital wall. The ethmoidal cells were opened and free drainage established into the nose by a rubber tube. The case exemplifies the condition designated by Peters in 1902 as pre-lacrimal tumor, the ectasia of the sac being occasioned by a stoppage of its orifices by pressure exerted externally from the inflammatory products or by the walls of neighboring sinuses.

(*To be Concluded in August Number.*)

EXAMINATION OF THE EYE WITH THE NERNST LIGHT.

Jean Staehl (*Beiträge für Augenheilkunde,* December, 1912) finds that oblique illumination with the Nernst light yields much better results than with the ordinary light. Very minute lesions on the cornea and iris can be recognized by the aid of a binocular loupe with this light. Since using it he has found traces of the pupillary membrane much more frequently than formerly, finding them present in more than sixty per cent. of the cases he has examined.

THE ROYAL SOCIETY OF MEDICINE.

SECTIONS OF OPHTHALMOLOGY AND NEUROLOGY.

At the meeting of these Sections on March 5th, under the presidency of Sir Anderson Critchett, C.V.O., the subject of the discussion was

Disease of the Pituitary Body.

Professor Schäfer opened with a very detailed exposition, aided by numerous slides, of the structure and functions of that body. He said the pituitary body was present in all vertebrates which had been examined, therefore it must be an organ of considerable morphological interest. Its development occurred as an extension of Rathke's pouch, which was an invagination of the buccal ectoderm towards the brain. This was met by a hollow downgrowth from the thalamencephalon, and the combination of the two into one organ formed the pituitary body. The gland consisted of three parts: (1) pars anterior, (2) pars intermedia, (3) pars nervosa. Usually it was described as consisting of two parts—the anterior and the posterior lobes. Remarkable alterations occurred in the pituitary as the result of thyroidectomy, and similar changes seemed to result where atrophy of the thyroid ensued. The alterations after thyroidectomy included (1) enlargement of the pituitary body; (2) the presence of a colloid substance in the vescicles in the pars anterior, and a great increase in that of the pars intermedia; (3) a great increase in the number of hyaline bodies in the pars intermedia and the pars nervosa. It was not easy to explain these changes physiologically, because the functions of the two glands were not identical, though both were probably connected with sexual development, for in the case of removal of either there was a stunting of growth and sexual infantilism. Moreover, castration had been followed by hypophysial hypertrophy. The greatest enlargement of the pituitary body was found in giants and acromegalics; the skeleton of giants was characterized by a disproportionately large sella turcica.

The physiology of the pituitary body had been investigated experimentally by methods of removal and of addition, the latter by administration of extracts of the gland, and by implantation. The evidence following removal was conflicting. Young animals which survived extirpation had their growth retarded and their sexual activities remained undeveloped. But some observers

stated that total removal was not fatal, death (when it occurred) having been due to the complications of the operation. Mere injury of the pituitary might cause marked polyuria, but it disappeared after a few days. Possibly this was the explanation of the polyuria sometimes seen in association with fracture of the base of the skull. Feeding with fresh or dried gland substance was normally not attended with any obvious result, even in growing animals. There was certainly no retardation of growth, such as had been described. Attempts to graft the organ had been unsuccessful. Saline extracts of pituitary, injected intravenously, had a marked effect upon all involuntary muscles; they caused constriction of most of the bloodvessels of the body, a powerful and usually slowed action of the heart, the tone of which was increased, contraction of bladder, uterus and bowel, and dilatation of the pupil in the frog. The substance producing these results was of a relatively simple nature, was soluble in water, and dialysable, and was not destroyed by repeated boiling, nor by long keeping in a dried state or in a sterilized condition. It was insoluble in alcohol or ether. Intravenous injection of pituitary extract excited secretion in certain glands, such as the kidney, and in the mammary gland during lactation; there was dilatation of the renal arteries, though the effect on the general arteries of the body was constriction. The substance producing effects upon bloodpressure, heart and kidney was contained only in the posterior lobe, and it had been found in the cerebrospinal fluid. According to the observations of Ott, Scott, and Mackenzie, the galactagogue hormone of the pituitary was also confined to the posterior lobe, and it was assumed to be identical with that which caused the other effects upon bloodvessels, heart, and kidney. The anterior lobe seemed related to the general growth of the body, especially that of the skeleton; while the posterior, including the pars intermedia, probably promoted the contractility and increased the tone of plain muscular tissue.

Mr. J. Herbert Fisher commented on the complexity of function of the two portions of the pituitary body, and the supreme importance of the gland to life, and its interactions with other ductless glands. Colloid was also formed, as in the case of the pituitary, by rare tumors which sometimes developed in the remnants of the post-anal gut. He also remarked on the fact that castration and oöphorectomy caused some overgrowth of the pituitary body, while the hypophysis enlarged during pregnancy. He believed the climacteric was prematurely reached, or im-

potence in the male, by months, and even years, before other symptoms pointed to disorders localized to the hypophysis, and in this direction, observations of gynæcologists might be of value. Hypoplasia of the adrenals was also accompanied with excessive development of secondary sexual characteristics.

A case exhibited by Dr. Turney showed pituitary disorder with adiposity and abnormally raised bloodpressure, undue pigmentation of skin, and liability to spontaneous bleeding. For diagnostic purposes, the ophthalmic surgeon worked chiefly with his perimeter in recognizing and watching pituitary disease. The typical condition was one of bitemporal hemianopsia; though that statement did not cover the question, cases had been recorded in which a central scotoma resembling that seen in tobacco amblyopia existed, but in which the extension of the scotoma resulted in bitemporal hemianopsia. He did not see how pituitary tumors could press first at the anterior angle of the commissure. X-rays were very serviceable in proving or negativing the existence of bone erosion. Mr. Doyne had shown that hemianopsia of the color sense might precede that of the form sense, and give a guide to prognosis; and with that Cushing agreed. In a proportion of cases of pituitary body enlargement, homonymous hemianopsia was a symptom in the earlier development of the case, but he was convinced that an evenly-balanced loss of the temporal field in each eye of simultaneous onset was the exception. Direct pressure on the optic chiasma, so glibly invoked, was far from being a satisfactory explanation of most of the cases. He asked whether neurologists believed that the anosmia present in some pituitary cases could be attributed to involvement of the uncinate gyrus. He believed the visual phænomena were explicable by traction effects on the visual pathways as the tumor extended behind the chiasma and between the optic tracts in the inter-peduncular space. For operation, he favored a route through the fronto-temporal opening of the cranium. If this method were pursued, the free removal of the bone and opening of the dura mater on the opposite side allowed more freedom for elevation and displacement of brain, and thus gave more ready access to the pituitary region.

On March 12th the discussion was resumed by Dr. Turney, who discussed at length a case which had been under his care, and whom he showed at the last meeting. The symptoms referred mainly to the posterior lobe. The patient was a lady, æt. 25, who until 1907 was in no way abnormal. Before that time

her menstruation had been regular, but since then it had been entirely absent. Her friends remarked on her increasing stoutness, and during the last two years she noticed she bruised with unusual readiness, especially on the legs. She also had pain in the back, starting from the kyphotic curve in the upper dorsal region and traveling round the ribs. Mentally she seemed unaffected, and her sight remained good, except for the slight error of refraction which she had always had. Thyroid extract had been administered repeatedly, but had to be given up on account of palpitation. In spite of the obesity present, her weight was now less than formerly; her face was fat and florid; there was no puffiness about the eyes. The hair was dry and somewhat scanty, but the eyebrows were present. The expression was bright, and manner alert, skin not pigmented; pubic and auxiliary hair scanty. The upper limbs were of normal size, but lower limbs and buttocks thin. The thyroid was normal in size and consistency. No evidence of enlarged thymus, lymphatic glands, or spleen. X-ray examination showed absorption of posterior clinoid processes. There had never been intracranial pressure or involvement of the nervous system. In July, 1912, Mr. J. H. Fisher reported that the white, blue, and red fields were not transposed, and there was no certain evidence pointing to the probable development of temporal hemianopsia. On recent examination, surrounding four-fifths of the right disc there was a sub-retinal exudation of glistening character and ill-defined limits; no blood there at present except two or three very fine spots on the white area; otherwise each fundus was normal. The blood pressure on admission was 200 mm. of mercury, and it had remained at about that level ever since. There was a tendency to polycythæmia, without other blood changes. At one examination the red cells reached eight millions. There had been a spontaneous fracture of the sternum between the manubrium and the gladiolus. The urine was normal, and there was no polyuria. The sugar tolerance limit was normal at about 120 grammes of lævulose. Professor Dixon had examined the urine, and found it to contain a pressor substance in considerable quantity; 10 c.c. of the urine injected into a cat raised the bloodpressure 70 or 80 mm., whereas a similar injection of normal urine would lower the bloodpressure nearly to the base-line. Dr. Dixon added that this patient's urine contained 100 times the pressor substance found in normal urine, and that it corresponded closely with the urines of cases he had examined of acromegaly. Extract of

posterior lobe was given, at first subcutaneously, but this method had to be abandoned owing to the tendency to superficial necrosis. She showed no increased tolerance to carbo-hydrates. The presence of the pressor substance showed that the pituitary secretion was in excess. Dr. Turney discussed the case fully, his conclusion being that the patient had a pituitary-sexual-gland syndrome, the lesion being in the posterior lobe of the pituitary. A possible alternative was that there was a temporary failure of the element controlling carbo-hydrate metabolism.

Professor Dixon, F.R.S., detailed his findings in a man the subject of acromegaly of ten years' duration. He had an enormous heart, but no rise of bloodpressure. On injecting 1 c.c. of the urine into a cat, the bloodpressure went up, and the injection of 5 c.c. caused to to rise to 80 mm. The active substance was urohypertensin. The man died suddenly as a result of some extra exertion, and post-mortem the pituitary body was found to be the size of a walnut. The heart weighed about three pounds.

Dr. A. Garrod, F.R.S., gave a description of a case in which myxœdema and acromegaly probably co-existed. The improvement under thyroid treatment left no doubt as to the thyroid defect. The evidence of acromegaly was less conclusive. A skiagram showed enlargement of the sella turcica.

Dr. William Hill discussed the best route for operative treatment of pituitary tumor. He did not favor that advocated by Cushing, perferring that followed in submucous resection, and then taking the short, though dangerous, further step. The chief danger was that of wounding the optic chiasma. The Hirsch operation was simpler than that of Cushing, and Mr. Graham and he both found it gave good access to the tumor. He gave a word of warning as to the dangers of the operation, especially without exhaustive preliminary study.

Dr. Langdon Down discussed the subject, and showed photographs of a case.

Mr. Richardson Cross (Clifton) drew attention to the importance of the inter-relation of the various glands of the body in the economy, particularly ovaries, testes, pituitary, pineal, suprarenals, thyroid, thymus. He had found great benefit from the administration of thyroid and pituitary extracts.

Dr. F. E. Batten and Dr. Grainger Stewart also took part in the debate.

ABSTRACTS FROM MEDICAL LITERATURE.

By J. F. Shoemaker, M.D.,
St. Louis, Mo.

A REPORT OF NINE CASES OF OCULAR SYPHILIS TREATED BY SALVARSAN ("606").

Frederick E. Cheney (*Boston Med. and Surg. Jour.*, Dec. 21, 1911) reports four cases of uveitis and five of interstitial keratitis due to syphilis, treated by salvarsan. He summarizes the results as follows:

In the two cases of acute iritis with a condyloma, the rapid subsidence of the inflammatory symptoms and the disappearance of condyloma was most interesting and impressive to observe. These patients do, of course, get well quickly at times under mercury and iodid of potassium, but that salvarsan will prove more valuable in the treatment of this class of cases certainly seems probable. The deposits on the membrane of Descemet in the second case did not disappear rapidly, but such deposits, unless increasing, in no way indicate that the inflammatory process has not come to an end. In the third case, a chronic general uveitis, the inflammatory symptoms had entirely disappeared eleven days after the salvarsan injection, and this was certainly a satisfactory result in a case of this nature. A rapid disappearance of the vitreous membranes, however, was a hope not realized and hardly to be expected.

In the fourth case, a low form of long-continued general uveitis, there was no immediate result following the use of salvarsan. It was an eye in which the products of past inflammatory attacks were much more in evidence than an existing inflammation, and the remedy was given with little expectation of immediate benefit, but rather with the hope of preventing future exacerbations and further impairment of vision. The improvement found in the vision and the condition of the vitreous when he reported November 1 was certainly gratifying.

Concerning the cases of interstitial keratitis he says:

In the first case, so far as can be judged, the course of the disease was in no wise influenced by salvarsan. In the four other cases, the rapid disappearance of circumcorneal injection, of intolerance of light and lacrimation (well marked in three

of these four cases) following the salvarsan injection would seem to be more than a simple chance happening. As to the clearing of the corneal infiltration, there was no indication of any exceptional rapidity in three of the cases. In the other case (Case VI), the cornea certainly cleared more rapidly than usual. There was an infiltration involving the entire surface and the vision equaled 20/100. Seventy-two days after the first signs of irritation were noticed by the patient and forty-two days after the salvarsan injection, this infiltration had entirely disappeared with the exception of a very slight central haze and the vision equaled 20/20. On the other hand, it must be said that the infiltration of the cornea at no time was of extreme density and that a certain number of cases with no special treatment do make equally good recoveries. On the whole, it would not be wise to conclude that salvarsan was responsible for the rapid clearing of the cornea in this case. It is going to be difficult to form accurate conclusions as to the value of the salvarsan in this disease because of the variability of its course. If, however, a good number of these cases can be treated early, that is, at the beginning of corneal infiltration, carefully observed and accurately reported, it will probably be possible after a few years to arrive at a fairly definite appreciation of its value.

INFLUENCE OF SEPTIC INFECTION IN THE CAUSATION OF EYE DISEASE.

B. T. Lang (*Brit. Med. Jour.*, Feb. 22, 1913) calls attention to the obscurity of the cause of the great majority of cases of scleritis, keratitis, iritis, cyclitis, and chorioiditis, and the fact that recently these cases are looked upon as being due to the chemical effects of bacteria or their toxines, which reach the eye through the blood streams. Inasmuch as direct evidence that bacteria are present in such cases cannot usually be found he bases his opinion on indirect evidence, but he is convinced that the ocular lesions in such cases are caused by some exciting substance brought to the eye by the circulation from some septic focus in the body. He makes his deductions from a total of 176 cases, a number of which he reports briefly in illustration of his contention. He has found the foci of infection in one of three situations: 1, Along the respiratory or alimentary tracts; 2, along the genito-urinary tract; or 3, on the skin or in a sinus leading from it. Many of his cases were cured solely by treat-

ment of the septic focus. The author suggests that senility and myopia do not cause chorioiditis, as seems to be so often thought, but that in these conditions there is a reduced resistance of the chorioidal tissues which makes them favorable locations for infection.

BOOK REVIEWS.

THE OPHTHALMIC YEAR BOOK, Vol. IX, containing a digest of the Literature of Ophthalmology for the years 1911 and 1912. Edited by Edward Jackson, M.D. Illustrated. Herrick Book & Stationery Co., Denver, Colorado, 1913.

The ophthalmological profession is to be congratulated on the fact that the apparently defunct year book has been resurrected. May it be given to the editor to keep it alive for a long time!

We heartily welcome this, like its preceding volumes. It should be in the hands of every ophthalmologist. The present volume is graced by a picture of Dr. Hermann Knapp, a tribute to one whose name will ever be among those of the foremost ophthalmologists of the world.

The staff of assistants has been greatly enlarged. The text is preceded by biographical notices of ophthalmologists who have died in the last two years.

THE AMERICAN ENCYCLOPEDIA AND DICTIONARY OF OPHTHALMOLOGY. Edited by C. A. Wood, M.D., C.M., D.C.L. Assisted by a large force of collaborators. Fully illustrated. Volume I. A. to Azoviolett. Chicago, Cleveland Press, 1913.

As previously announced this first American Encyclopedia and Dictionary of Ophthalmology, is intended to be as complete as it can possibly be made. Ten volumes are to be the scope of this work. The first volume before us comprises all subjects under the letter A. The mass of material carried together in this volume is enormous, almost bewildering. If continued in this manner, the encyclopedia will surely be a library in itself, which every oculist and every library should possess. We congratulate both Editor and Publisher. ALT.